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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,309	09/01/2004	Toru Yamano	3029 USOP	8326
23115	7590	11/16/2005	EXAMINER	
TAKEDA PHARMACEUTICALS NORTH AMERICA, INC			FREISTEIN, ANDREW B	
INTELLECTUAL PROPERTY DEPARTMENT			ART UNIT	
475 HALF DAY ROAD			PAPER NUMBER	
SUITE 500			1626	
LINCOLNSHIRE, IL 60069			DATE MAILED: 11/16/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/506,309

Applicant(s)

YAMANO ET AL.

Examiner

Andrew B. Freistein

Art Unit

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/1/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Claims 1-6 are currently pending in the instant application.

#### *Priority*

This application is a 371 of PCT/JP03/02563, filed 03/05/2003.

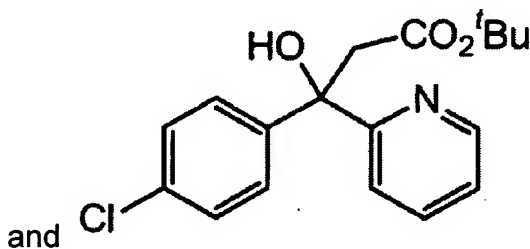
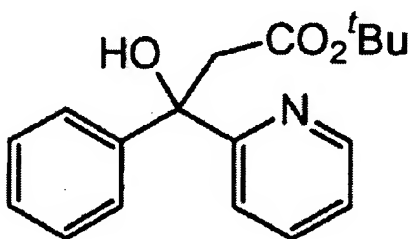
Acknowledgement is made of Applicant's claim for foreign priority under 35 U.S.C. § 119(a)-(d), by Japanese Patent Application No. 2002060402 filed on 03/06/2002.

#### *Information Disclosure Statement*

Applicant's information disclosure statement (IDS), filed on 09/01/2004, has been considered. Please refer to Applicant's copies of the 1449 submitted herewith.

#### *Response to Restriction Requirement*

Acknowledgement is made of Applicant's election of Group IV (with traverse) and the species of Examples 3 and 4 on pages 38-41 of the specification,



and , in a response

filed September 13, 2005.

Applicant traverses the restriction requirement, because there are limitations in the claims for the definitions of R<sup>1</sup> and R<sup>2</sup>. Applicant requests Groups IV and V be combined, because of the limitations of R<sup>1</sup> and R<sup>2</sup>.

Examiner agrees to combine the definitions of R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> from Group IV and Group V (see Status of the Claims section below).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

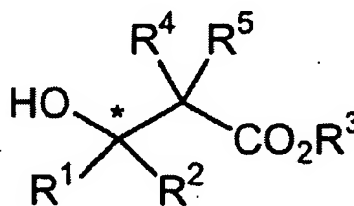
A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Ojida, et al., "Highly Enantioselective Reformatsky Reaction of Ketones: Chelation-Assisted Enantioface Discrimination," Organic Letters, Vol. 4, No. 18, pp. 3051-3054 (2002).

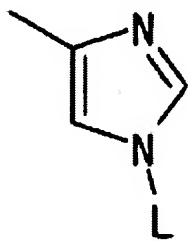
Although the three inventors of the instant application are co-authors of the article (Akio Ojida, Toru Yamano, and Naochiro Taya), there is another author of the article (Akihiro Tasaka). As a result, the invention was "known or used by others" before the invention by the applicant. See MPEP § 2132.01(III) (" 'Others' means any combination of authors or inventors different than the inventive entity").

Claim 1 of the instant application claims a method for producing an optically



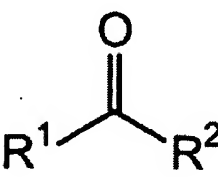
active  $\beta$ -hydroxy ester represented by formula (III), , wherein  
 $\text{R}^1$  is an optionally substituted aromatic group;  $\text{R}^2$  is represented by formula (IV),

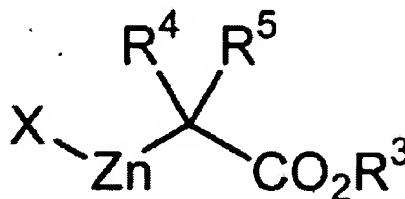
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; L is a protecting group; R<sup>3</sup> is a hydrocarbon group; and R<sup>4</sup> and R<sup>5</sup> are each hydrogen.

The method comprises reacting, in the presence of a cinchona alkaloid, a

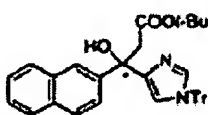
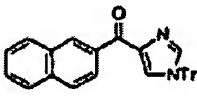
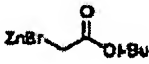
compound of formula (I), , wherein R<sup>1</sup> and R<sup>2</sup> are as defined in



Formula (III) above, with a compound of formula (II),

wherein R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are as defined in Formula (III) above.

The prior art Ojida, et al. article discloses a Reformatsky reaction used in a

process for making , by reacting  and  in the presence of cinchonine. Additionally, basic additives were added to the reaction mixture in further experimentations (see p. 3052).

**This rejection pursuant to 35 U.S.C. § 102(a) will be obviated by providing evidence of the date of the invention pre-dating the publication of Ojida, et al., such as a certified translation of the priority document (Japanese Patent**

**Application No. 2002060402); or alternatively, by providing a declaration that the Ojida, et al. article cited in the rejection was solely the work of the present inventors (Akio Ojida, Toru Yamano, and Naochiro Taya). See MPEP § 2132.01.**

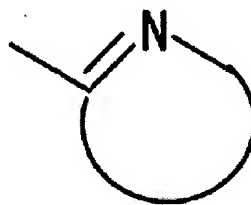
***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 defines R<sup>2</sup> as, "a nitrogen-containing heterocyclic group different from

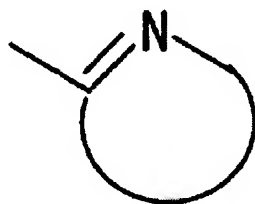


R<sup>1</sup>, which is represented by the general formula: (V) wherein the ring may be substituted, and may have one or more heteroatoms in addition to the nitrogen in the formula;..."

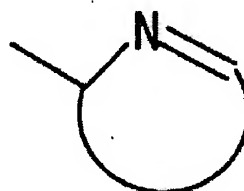
This definition is unclear, because it does not state how many atoms the nitrogen-containing heterocycle contains and what the additional heteroatoms are. From the drawing, it appears that there are a minimum of two carbon atoms and one nitrogen atom. However, the claim should be rewritten to state a minimum and a maximum range.

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For example, the claim could be rewritten to state, "...a nitrogen-containing heterocyclic group of **5- to 6-members** different from  $R^1$ , which is represented by the

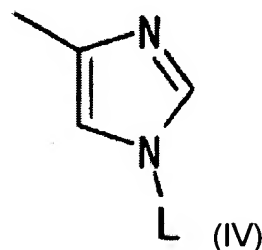


general formula: (V) wherein the ring may be substituted, and may have one or more heteroatoms **selected from N, O and S** in addition to the nitrogen in the formula;..." (emphasis added to highlight the proposed amendment).



Similarly, where  $R^2$  is of formula (VI), , it is unclear how many atoms are in the nitrogen-containing heterocyclic group and what the additional heteroatoms are. This definition should be amended in a similar way to formula (V) above.

Additionally, Claim 1 is rejected, because of the definition of  $R^2$ , which states, "...provided that a case is eliminated where  $R^1$  is an optionally substituted aromatic



group and  $R^2$  is a group represented by the general formula:

wherein L represents a protecting group,..." (see claim 1, p. 2, lines 2-6). Specifically, the language, "a case is eliminated" is ambiguous. It is unclear what "case" Applicant is

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eliminates and under what circumstance the elimination occurs. The elimination proviso should be clearly identified rather than stated in general terms or deleted from the claim.

Claim 1 is also rejected for the improper definition of "cinchona alkaloid." It is defined in the specification only by examples and exemplification is not a specific definition (see specification, p. 16, lines 18-19). The specification must set forth the definition explicitly and clearly, with reasonable clarity, deliberateness and precision, *Teleflex Inc. v. Ficosa North Am Corp.*, 63 USPQ2d 1374, (Fed. Cir. 2002), *Rexnord Corp. v. Laitram Corp.*, 60 USPQ2d 1854 (Fed. Cir. 2001).

Claim 1 should be amended to incorporate the definitions of cinchona alkaloid of claim 4 into the claim 1. For example, in claim 1, page 2, line 16+ should be amended to read, "...in the presence of a cinchona alkaloid **selected from the group consisting of cinchonine, cinchonidine, quinine, or quinidine**, or a salt thereof..." (emphasis added to highlight the proposed amendment).

### ***Status of the Claims***

Claims 1-6 are currently pending in the instant application.

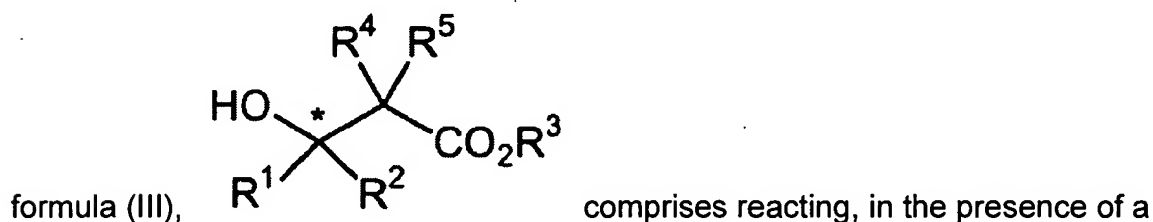
Claims 1 (in part) and 6 are withdrawn from further consideration by the Examiner as being drawn to non-elected inventions under 37 CFR § 1.142(b). The withdrawn subject matter is patentably distinct from the elected subject matter as it differs in structure and element and would require separate search considerations. In addition, a reference that anticipates one invention would not render obvious the other invention.

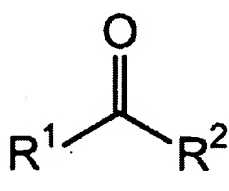


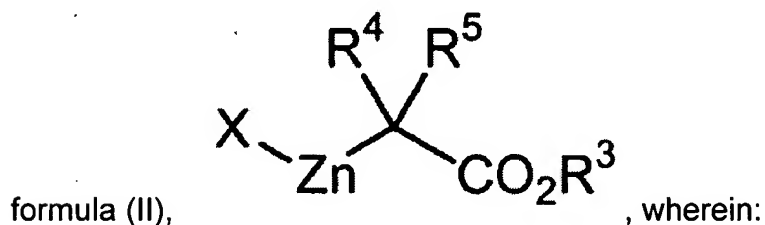
Elected and Examined Subject Matter

The scope of the invention of the elected subject matter and the examined subject matter is as follows:

A method for producing an optically active  $\beta$ -hydroxy ester represented by



cinchona alkaloid, a compound of formula (I), , with a compound of



$R^1$  is an optionally substituted phenyl;

$R^2$  is a 5- to 6-membered nitrogen-containing aromatic heterocyclic group;

$R^3$  is an optionally substituted hydrocarbon group;

$R^4$  is H, an optionally substituted hydrocarbon group, or  $R^4$  is taken together with  $R^5$  to form a ring;

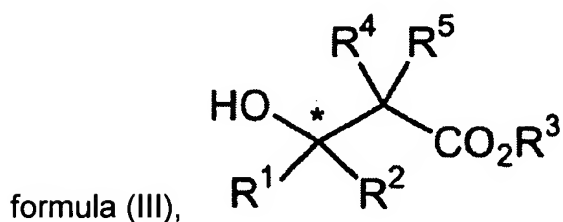
$R^5$  is H, an optionally substituted hydrocarbon group, or  $R^5$  is taken together with  $R^4$  to form a ring; and

L is as defined in claim 1.

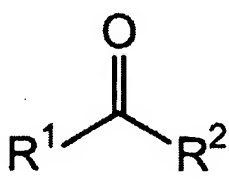
Non-elected and Non-examined Subject Matter

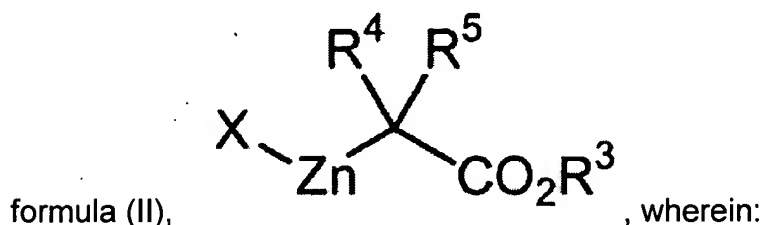
The scope of the invention of the non-elected and non-examined subject matter is as follows:

A method for producing an optically active  $\beta$ -hydroxy ester represented by



comprises reacting, in the presence of a

cinchona alkaloid, a compound of formula (I), , with a compound of



$R^1$  is hydrogen, an optionally substituted hydrocarbon group, or an optionally substituted heterocyclic group;

$R^2$  is a nitrogen-containing aromatic heterocyclic group that has less than five members or more than six members;

$R^3$  is an optionally substituted heterocyclic group, or together with  $R^4$  or  $R^5$  forms a ring;

$R^4$  is a halogen atom, an optionally substituted silyl group, or together with  $R^3$  forms a ring;

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$R^5$  is a halogen atom, an optionally substituted silyl group, or together with  $R^3$  forms a ring;

As a result of the election and the corresponding scope of the invention, identified supra, the remaining subject matter of Claim 1 and 6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to non-elected inventions. The withdrawn compounds contain varying functional groups such as azepanyl, azetidinyl, aziridine, indole, adenine, etc. which are chemically recognized to differ in structure, function, and reactivity.

Therefore, the subject matter which was withdrawn from consideration as being non-elected subject matter materially differs in structure and composition from the elected/examined subject matter so that a reference which anticipates the elected/examined subject matter would not render obvious the non-elected subject matter.

### ***Claim Objections***

Claims 1 and 6 are objected to as being drawn to non-elected subject matter.

Claims 2-6 are objected to as being dependent upon a rejected base claim.

### ***Telephone Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew B. Freistein whose telephone number is (571) 272-8515. The examiner can normally be reached Monday-Friday, 8:30 am - 5:00 pm.

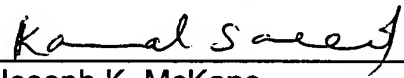
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

KAMAL A. SAEED, PH.D.  
PRIMARY EXAMINER

Andrew B. Freistein  
Patent Examiner, AU 1626

*for*   
\_\_\_\_\_  
Joseph K. McKane  
Supervisory Patent Examiner, AU 1626  
Date: November 7, 2005